



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,279	02/05/2008	Naoki Hatta	133.0014 (F-2026US)	2841
27997	7590	02/03/2011	EXAMINER	
PRIEST & GOLDSTEIN PLLC			WEINER, LAURA S	
5015 SOUTHPARK DRIVE				
SUITE 230			ART UNIT	PAPER NUMBER
DURHAM, NC 27713-7736			1726	
			MAIL DATE	DELIVERY MODE
			02/03/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,279	HATTA ET AL.	
	Examiner	Art Unit	
	/Laura S. Weiner/	1726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 January 2011.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4-7,9,10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2,4-7,9,10 and 12-14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11-08; 11-09; 5-10</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-2, 4-5, 10 in the reply filed on 1-10-2011 is acknowledged. The restriction has been withdrawn. Applicant's election of species of a cathode comprising Li_nFePO₄ where V is present has been examined.

Claim Rejections - 35 USC § 112

2. Claims 1-2, 4-7, 9-10, 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 4 and 6 are rejected because it is unclear how the cathode can contain FePO₄ when n=0.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (JP 2002-198050, translation).

Nakamura et al. teaches a positive electrode comprising an active material having the formula, $\text{Li}_{1-x}\text{AxFe}_{1-y}\text{zMyMe}_z\text{P}_{1-m}\text{X}_m\text{O}_{4-n}\text{Zn}$ where x can be 0, y can be 0, m can be 0 or be less than 0.3 and n can range between 0-0.5. Nakamura et al. teaches in [0014-0020], that Me can be Al, S can be Si and Z can be F, Cl, Br, I, etc. [*Therefore teaching the formula $\text{LiFe}_{1-z}\text{Me}_z\text{PO}_{4-n}\text{Zn}$ or $\text{LiFe}_{1-z}\text{Me}_z\text{P}_{1-m}\text{X}_m\text{O}_{4-n}\text{Zn}$.* *Therefore teaching $\text{LiFe}_{1-z}(\text{Al})_z\text{PO}_{4-n}(\text{F}, \text{Cl}, \text{Br}, \text{etc.})$ or $\text{LiFe}_{1-z}(\text{Al})_z\text{P}_{1-m}\text{Si}_m\text{O}_{4-n}(\text{F}, \text{Cl}, \text{Br}, \text{I}, \text{etc.})$.*].

5. Claims 1-2, 5-7, 9-10, 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Revet et al. (6,855,273).

Revet et al. teaches in column 8, Example 1, a cathode comprising LiFePO₄ is coated with a carbonaceous material. Revet et al. teaches in column 4, lines 25-45, that the improvement of the conductivity at the surface of the particles obtained with the carbonaceous material coating allows satisfactory operations of electrodes containing electroactive materials having an insufficient electronic conductivity to obtain acceptable performance. Revet et al. teaches in columns 3-4, that the cathode has the general formula A_aM_mZ_zO_nF_f where A is Li, M is at least one transition metal such as Fe, vanadium (Group 5), titanium (Group 4), molybdenum (Group 6), tungsten (Group 6), etc. where z=0, n=0 and F is fluorine.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakamura et al. (JP 2002-198050, translation).

Nakamura et al. teaches a positive electrode comprising an active material having the formula, $\text{Li}^{1-x}\text{AxFe}^{1-y}\text{zMyMezP}^{1-m}\text{XmO}^{4-n}\text{Zn}$ where x can be 0, y can be 0, m can be 0 or be less than 0.3 and n can range between 0-0.5. Nakamura et al. teaches in [0014-0020], that Me can be Al, S can be Si and Z can be F, Cl, Br, I, etc. [*Therefore teaching the formula $\text{LiFe}^{1-z}\text{MezPO}^{4-n}\text{Zn}$ or $\text{LiFe}^{1-z}\text{MezP}^{1-m}\text{XmO}^{4-n}\text{Zn}$.* *Therefore teaching $\text{LiFe}^{1-z}(\text{Al})\text{zPO}^{4-n}(\text{F}, \text{Cl}, \text{Br}, \text{etc.})$ or $\text{LiFe}^{1-z}(\text{Al})\text{zP}^{1-m}\text{Si}^{m}\text{O}^{4-n}(\text{F}, \text{Cl}, \text{Br}, \text{I}, \text{etc.})$.*].

In the event any differences can be shown for the product of the product by process claim 4, as opposed to the product taught by Nakamura et al., such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. *In re Thrope 227 USPQ 964; (Fed. Cir. 1985).*

With respect to the product by process claim 4, the determination of patentability is based upon the product itself not upon the method of its production. *In re Thrope 227*

USPQ 964; In re Brown 173 USPQ 685; In re Bridgeford 149 USPQ 55; In re Wertheim 191 USPQ 90. Any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the Examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the Applicants to establish that their product is patentably distinct. *In re Brown 173 USPQ 685 and In re Fessmann 180 USPQ 324.*

When the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or 103 of the statute is appropriate. As a practical matter, the Patent and Trademark Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith. A lesser burden of proof is required to make out a case of *prima facie* obviousness for product-by-process claims because of their particular nature than when a product is claimed in the conventional fashion. *In re Brown*, 59 CCPA 1063, 173 USPQ 685 (1972); *In re Fessmann*, 180 USPQ 324 (CCPA 1974).

8. Claims 1-2, 4-7, 9-10, 12-14 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ravet et al. (6,855,273).

Revet et al. teaches in column 8, Example 1, a cathode comprising LiFePO₄ is coated with a carbonaceous material. Revet et al. teaches in column 4, lines 25-45, that the improvement of the conductivity at the surface of the particles obtained with the carbonaceous material coating allows satisfactory operations of electrodes containing electroactive materials having an insufficient electronic conductivity to obtain acceptable performance. Revet et al. teaches in columns 3-4, that the cathode has the general formula AaMmZzOoNnFf where A is Li, M is at least one transition metal such as Fe, vanadium (Group 5), titanium (Group 4), molybdenum (Group 6), tungsten (Group 6), etc. where z=0, n=0 and F is fluorine.

In the event any differences can be shown for the product of the product by process claim 4, as opposed to the product taught by Ravet et al., such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. *In re Thrope* 227 USPQ 964; (*Fed. Cir.* 1985).

With respect to the product by process claim 4, the determination of patentability is based upon the product itself not upon the method of its production. *In re Thrope* 227 USPQ 964; *In re Brown* 173 USPQ 685; *In re Bridgeford* 149 USPQ 55; *In re Wertheim* 191 USPQ 90. Any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the Examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the Applicants to establish that their product is patentably distinct. *In re Brown* 173 USPQ 685 and *In re Fessmann* 180

USPQ 324.

When the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or 103 of the statute is appropriate. As a practical matter, the Patent and Trademark Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith. A lesser burden of proof is required to make out a case of *prima facie* obviousness for product-by-process claims because of their particular nature than when a product is claimed in the conventional fashion. *In re Brown*, 59 CCPA 1063, 173 USPQ 685 (1972); *In re Fessmann*, 180 USPQ 324 (CCPA 1974).

9. Claims 1, 4-7, 9-10, 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (JP 2002-198050, translation) in view of Ravet et al. (6,855,273).

Nakamura et al. teaches a positive electrode comprising an active material having the formula, $\text{Li}_{1-x}\text{AxFe}_{1-y}\text{-zMyMezP}_{1-m}\text{XmO}_{4-n}\text{Zn}$ where x can be 0, y can be 0, m can be 0 or be less than 0.3 and n can range between 0-0.5. Nakamura et al. teaches in [0014-0020], that Me can be Al, S can be Si and Z can be F, Cl, Br, I, etc.

[Therefore teaching the formula $\text{LiFe}_{1-z}\text{MezPO}_{4-n}\text{Zn}$ or $\text{LiFe}_{1-z}\text{MezP}_{1-m}\text{XmO}_{4-n}\text{Zn}$. Therefore teaching $\text{LiFe}_{1-z}(\text{Al})_z\text{PO}_{4-n}(\text{F, Cl, Br, etc.})$ or $\text{LiFe}_{1-z}(\text{Al})_z\text{P}_{1-m}\text{Si}_m\text{O}_{4-n}(\text{F, Cl, Br, I, etc.})$].

Nakamura et al. discloses the claimed invention except for specifically teaching that the cathode material comprises a conductive carbon deposited on the surface.

Revet et al. teaches in column 8, Example 1, a cathode comprising LiFePO₄ is coated with a carbonaceous material. Revet et al. teaches in column 4, lines 25-45, that the improvement of the conductivity at the surface of the particles obtained with the carbonaceous material coating allows satisfactory operations of electrodes containing electroactive materials having an insufficient electronic conductivity to obtain acceptable performance. Revet et al. teaches in columns 3-4, that the cathode has the general formula AaMmZzOoNnFf where A is Li, M is at least one transition metal such as Fe, vanadium, titanium, molybdenum, tungsten, z=0, n=0 and F is fluorine.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to coating the cathode material with a conductive carbon taught by Revet et al. because Revet et al. teaches that the improvement of the conductivity at the surface of the particles obtained with the carbonaceous material coating allows satisfactory operations of electrodes containing electroactive materials having an insufficient electronic conductivity to obtain acceptable performance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Laura S. Weiner/ whose telephone number is 571-272-1294. The examiner can normally be reached on M-H (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura S Weiner/
Primary Examiner
Art Unit 1726

January 30, 2011